I CLAIM:

1. A method comprising:

creating a dataset that includes images, one of the images (a) depicting a non-tissue internal reference marker, (b) being linked to non-tissue internal reference marker positional information, and (c) being at least 2-dimensional.

2. The method of claim 1, where the non-tissue internal reference marker positional information comprises a dataset vector.

3. The method of claim 1, where each image (a) depicts the non-tissue internal reference marker, and (b) is linked to non-tissue internal reference marker positional information.

4. The method of claim 3, where the non-tissue internal reference marker positional information comprises a dataset vector.

5. The method of claim 1, where the images are 3-dimensional computed tomography (CT) images.

6. The method of claim 1, where the images are 3-dimensional magnetic resonance imaging (MRI) images.

7. The method of claim 1, where the images are 2-dimensional fluoroscopy images.

8. The method of claim 2, further comprising:

loading a gated dataset into memory, the gated data set including the images, one of the images (a) depicting the non-tissue internal reference marker, and (b) being linked to a sample of a first periodic human characteristic signal.

9. The method of claim 8, where each image (a) depicts the non-tissue internal reference marker, and (b) is linked to a sample of a first periodic human characteristic signal.

10. The method of claim 8, further comprising:

receiving a second periodic human characteristic signal; and

comparing a sample of the second periodic human characteristic signal to the sample of the first periodic human characteristic signal;

11. The method of claim 10, where the first and second periodic human characteristic signals are electrocardiogram (ECG) signals.

12. The method of claim 10, further comprising:

recognizing a sample of the second periodic human characteristic signal that matches the sample of the first periodic human characteristic signal; and

receiving (a) a position of an external reference marker and (b) a position of the non-tissue internal reference marker.

13. The method of claim 12, further comprising:

calculating the dataset vector using (a) the position of the external reference marker and (b) the position of the non-tissue internal reference marker.

14. The method of claim 1, further comprising:

calculating the dataset vector using (a) a position of an external reference marker and (b) a position of the non-tissue internal reference marker.

15. The method of claim 14, further comprising:

associating a transformation from tracking space to image space with an image in the dataset.

16. The method of claim 14, further comprising:

associating a transformation from tracking space to image space with each image in the dataset.

17. The method of claim 13, further comprising:

receiving image space coordinates of the non-tissue internal reference marker in the image linked to the dataset vector.

18. The method of claim 17, further comprising:

calculating a transformation using the image space coordinates.

19. The method of claim 18, further comprising:

associating the transformation with the image linked to the dataset vector.

20. The method of claim 13, further comprising:

associating a transformation from tracking space to image space with each image in the dataset.

21. The method of claim 19, further comprising:

receiving a current position of the external reference marker;

receiving a current position of the non-tissue internal reference marker;

calculating a current vector using the current positions;

identifying a match dataset vector (MDV), the MDV being the dataset vector most similar to the current vector, the MDV being linked to an image from the dataset;

receiving a current position of an instrument reference marker coupled to an instrument;

applying the transformation associated with the image linked to the MDV to the current position of the instrument reference marker, thus transforming the current position of the instrument reference marker into image space; and

superimposing a representation of the instrument on the image linked to the MDV.

22. The method of claim 15, further comprising:

receiving a current position of the external reference marker;

receiving a current position of the non-tissue internal reference marker;

calculating a current vector using the current positions;

identifying a match dataset vector (MDV), the MDV being the dataset vector most similar to the current vector, the MDV being linked to an image from the dataset;

receiving a current position of an instrument reference marker coupled to an instrument;

applying the transformation associated with the image linked to the MDV to the current position of the instrument reference marker, thus transforming the current position of the instrument reference marker into image space; and

superimposing a representation of the instrument on the image linked to the MDV.

23. A computer readable medium comprising machine readable instructions for carrying out the steps of any of claims 1-22.

24. A method comprising:

receiving a position of an instrument reference marker coupled to an instrument;

transforming the position into image space using a position of a non-tissue internal reference marker implanted in a patient; and

superimposing a representation of the instrument on an image in which the non-tissue internal reference marker appears.

25. The method of claim 24, where the image was taken using fluoroscopy.

26. The method of claim 24, where the image was taken using computed tomography (CT).

27. The method of claim 24, where the image was taken using magnetic resonance imaging (MRI).

28. The method of claim 24, where the transforming includes transforming the position into image space using a transformation that is based, in part, on the position of the non-tissue internal reference marker implanted in the patient.

29. The method of claim 28, further comprising:

calculating the transformation using image space coordinates of the internal reference marker in the image.

30. The method of claim 29, further comprising:

linking the transformation to the image.

31. The method of claim 30, further comprising:

loading the transformation into memory.

32. The method of claim 24, further comprising:

receiving an image signal that includes the image.

33. The method of claim 32, further comprising:

receiving a position of the non-tissue internal reference marker in the image.

34. The method of claim 33, further comprising:

calculating a vector using the position.

35. The method of claim 34, further comprising:

linking the vector with the image.

36. The method of claim 35, where the transforming includes transforming the position into image space using a transformation that is based, in part, on the position of the non-tissue internal reference marker implanted in the patient.

37. The method of claim 36, further comprising:

linking the transformation from tracking space to image space with the image.

38. A computer readable medium comprising machine readable instructions for carrying out the steps of any of claims 24-37.

39. A method comprising:

receiving an image signal that includes images, each image depicting a non-tissue internal reference marker;

receiving a position of the non-tissue internal reference marker in one of the images (image I1);

calculating a vector using the position;

linking the vector with an image I1;

linking a transformation from tracking space to image space with image I1;

receiving a current position of an instrument reference marker coupled to an instrument;

applying the transformation to the current position of the instrument reference marker; and

superimposing a representation of the instrument on image I1.

40. A computer readable medium comprising machine readable instructions for carrying out the steps of claim 39.